

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 2, line 15 as follows:

a,
Japanese Unexamined Patent Publication No. 2000-97786 discloses several strain sensors employing this general type of temperature compensation. One of these conventional strain sensors will be described in detail ~~here~~, here for comparison with an embodiment of the present invention to be described later. The conventional strain sensor described here, shown in a top plan view in FIG. 1 and in a side view in FIG. 2, has an optical fiber 10 with an FBG 12 attached by an adhesive, for example, to a tension member 44. The tension member 44 has the general form of a rectangular plate with a tapered section 44a at or near the ~~center~~, center where the FBG 12 is located. The axis α of the optical fiber 10 extends longitudinally through the tapered section 44a. If longitudinal tension stress is applied to the tension member 44, then the tapered section 44a elongates by an amount that increases with decreasing width of the taper. The FBG 12 elongates in a similar manner. As a result, the grating pitch of the FBG 12 increases toward the narrow end of the tapered section 44a, changing the FBG 12 from a uniform grating to a chirped grating.

Please amend the paragraph beginning on page 8, line 15 as follows:

a,
The FBG strain sensor in this first embodiment comprises a strain sensor member 14 having a centrally located strain sensing section 14a, an optical fiber 10 fastened to the surface of the strain sensing section 14a by an adhesive or the like, and an FBG 12 with an initially uniform grating pitch, formed in the segment of the optical fiber 10 attached to the strain sensing section 14a, and extending along the core axis α of the optical fiber 10. This segment of the optical fiber 10 is bent so that the core axis α describes one quarter of a circular arc. The two ends of the FBG 12 are thus oriented at right angles to one another, one end being aligned in the longitudinal direction or X direction, the other end being aligned in the lateral direction or Y direction, perpendicular to the X direction.

Please amend the paragraph beginning on page 17, line 8 as follows:

93 The invented strain sensor can also be used to measure compression ~~strain~~, strain by pre-tensioning the strain sensing section and measuring the reduction in the reflection bandwidth when a compression force is applied.